



# ILLUSTRATED PARTS BREAKDOWN

# RA90 DISK DRIVE

## HOW TO USE THE IPB

### GENERAL

This IPB is compiled following the organization and nomenclature of the engineering drawing structure.

### MAJOR ASSEMBLY LOCATOR (When Applicable)

The Major Assembly Locator (first illustration) is an index that provides a description and a figure reference for all illustrations used in this manual.

### INDENTED PARTS LIST

This manual identifies each assembly being broken down (figure reference callout), and all parts of that assembly. Further breakdown of an assembly is shown by an asterisk (\*) preceding the item callouts in the Description Column. The number of asterisks preceding an item is used to denote the subordination of that item with respect to the Major Assembly. A single asterisk preceding an item description indicates that the item is part of the major assembly being illustrated. Items that are subordinate to single asterisks items, are denoted by two asterisks (\*\*) and immediately follow the related single asterisk item. This system of part identification provides a means for the user to identify the next higher assembly item and make alternate selections for parts when the required replacement part or assembly is not immediately available.

### COLUMN CALLOUT DESCRIPTION

Figure and Item - Indicates the figure number and item number of each part.

**Description** - Lists the name of the part and pertinent specifications (when required). Asterisks preceding the description denote the subordination of the part to the next higher assembly.

**DEC Part No.** - Lists the Digital part ordering number. A blank in this column indicates a Digital part number was not assigned at the time of publication.

**ECO Cut-In** - The notation at the top of this column indicates the ECO level of the system (option), at which the IPB was initially prepared. Subsequent ECO level designations, that modify existing parts or add new parts to the device, are inserted in the ECO Cut-In column next to the part that is added or modified.

**Used On Code** - Letters in this column correspond to the variation codes assigned in Figure 1. Parts with an Alpha notation(s) are used only in those option variations. A blank indicates that the part is used on all option variations.

**Ref Fig No.** - A cross reference between illustrations. For each Major Assembly, the number in this column denotes the figure of the next higher assembly. For all sub-assemblies, the number in this column denotes the figure showing additional detailed breakdown.

**PART NUMBER/PART DESCRIPTION SORT SECTION**  
Parts are sorted both numerically and alphabetically by description, referenced to a location within the IPB, by figure number and item number.

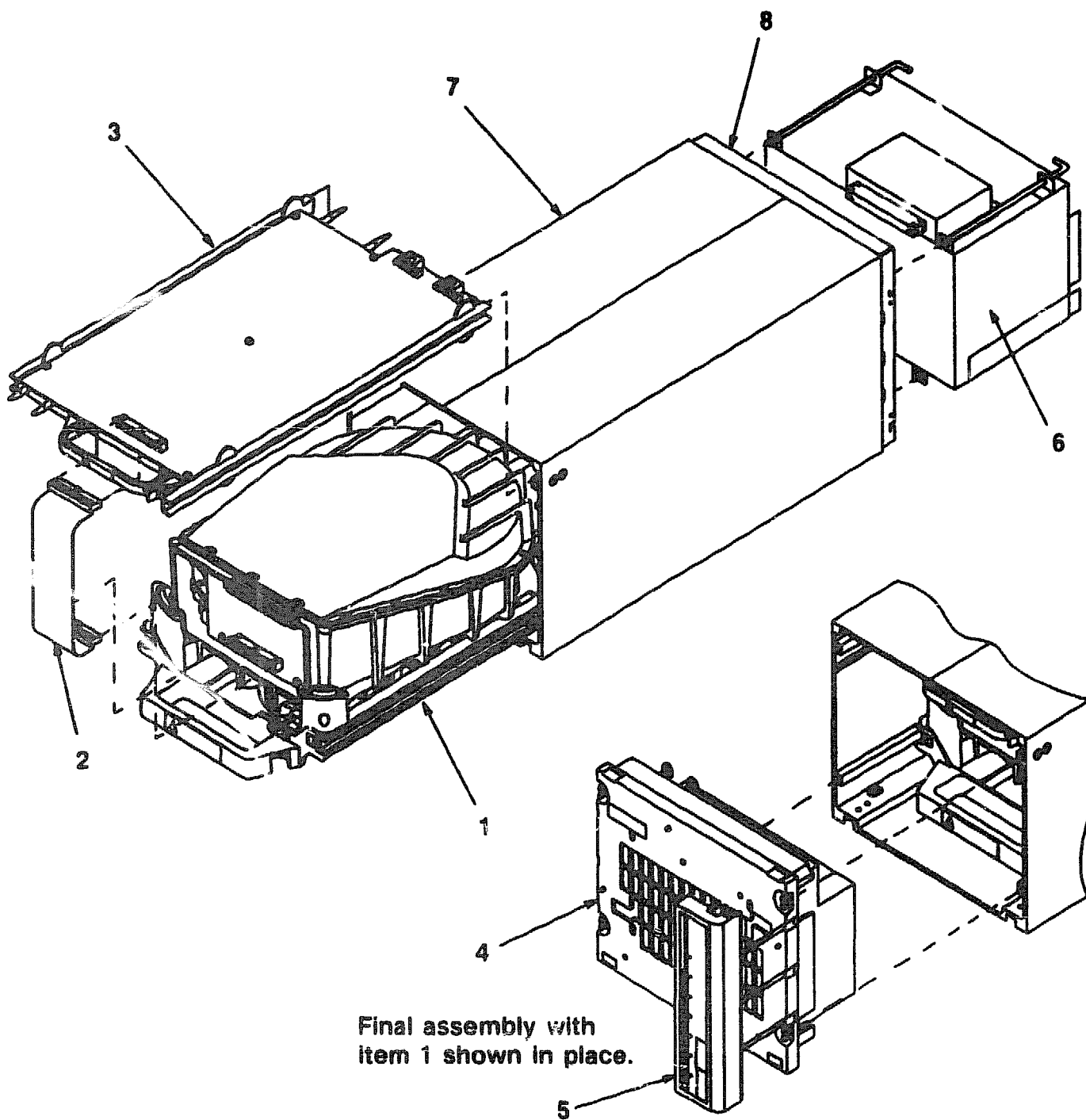
REVISION HISTORY				OTHER IPB MANUALS REFERENCED
PRINTING	ECO LEVEL		DATE	
1st Printing	70-23899	00019-00019	25-NOV-88	N/A
	70-22951	00006-00006		
	70-25690	70-22951-00004		
	70-22939	00001-00001		
	70-22940	00002-00002		
	70-22941	00001-00001		
	70-22942	70-23899-00018		
	70-22937	00003-00003		
	70-23210	00000-00000		

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XRA90-IP-01

Figure 1. RA90 Disk Drive Assembly

FIG. & ITEM NO.	DESCRIPTION	W DEC PART NO.	ECO CUT-IN 70-23899 00019	USED ON CODE	REF FIG NO.
1-	RA90 DISK DRIVE ASSEMBLY (See Note 1)	70-23899-01			
1	*HDA/CARRIER ASSEMBLY	70-22951-01			2
2	*Cable Assembly, 40 Cond. Shielded Jumper	17-01547-01			
3	*MODULE, ELECTRONIC CONTROL (ECM)	70-22942-01			7
4	*BLOWER/BEZEL ASSEMBLY	70-22939-01			4
5	*Panel, Operator Control w/Components	30-24453-01			
6	*Power Supply, 5.1V 9.7A Switching (H7142)	30-23508-01			
7	*CHASSIS ASSEMBLY	70-22940-01			5
8	*Cable Assembly, Triaxial 93 Ohm 4 Conductor SI (See Note 2)	17-01482-01			
	Labels (Not Shown)				
	*Label, "Product RA90 Made in USA"	36-30022-01			
	*Label, "Product RA90 Made in Germany"	36-30022-02			
	Miscellaneous Parts/Special Tools (Not Shown) (See Note 2)				
	*Connector, SDI Loopback (Test)	70-19074-01			
	*Tool, AMP Insert/Extract	29-26655-00			
	*Cord, 120V/60Hz Line	17-00083-23			
	*Cord, 240V/50Hz Line	17-00083-24			
	*Cord, 9' 15 Amp Power (IEC)	17-00442-19			
	Special Servicing Equipment (Not Shown) (See Note 2)				
	*Bag, RA90 HDA Barrier	99-08191-02			
	*Bag, RA90 Add-On Barrier	99-08191-03			
	*Bag, 60 Inch Cab Barrier	99-08191-04			
	*Bag, 40 Inch Cab Barrier	99-08191-05			
	*Bag, RA90 HDA Cushioned	99-08260-02			
	*Sheet, Barrier/Laminate	99-08190-01			
	*Tape, 100 MPH Duct	99-08258-01			
	*Desiccant	99-08086-21			
	Note 1: Not valid part number for field to order option. For whole drive option, including shipping and packaging, order RA90-NA.				
	Note 2: Not part of this assembly. Listed for reference only.				

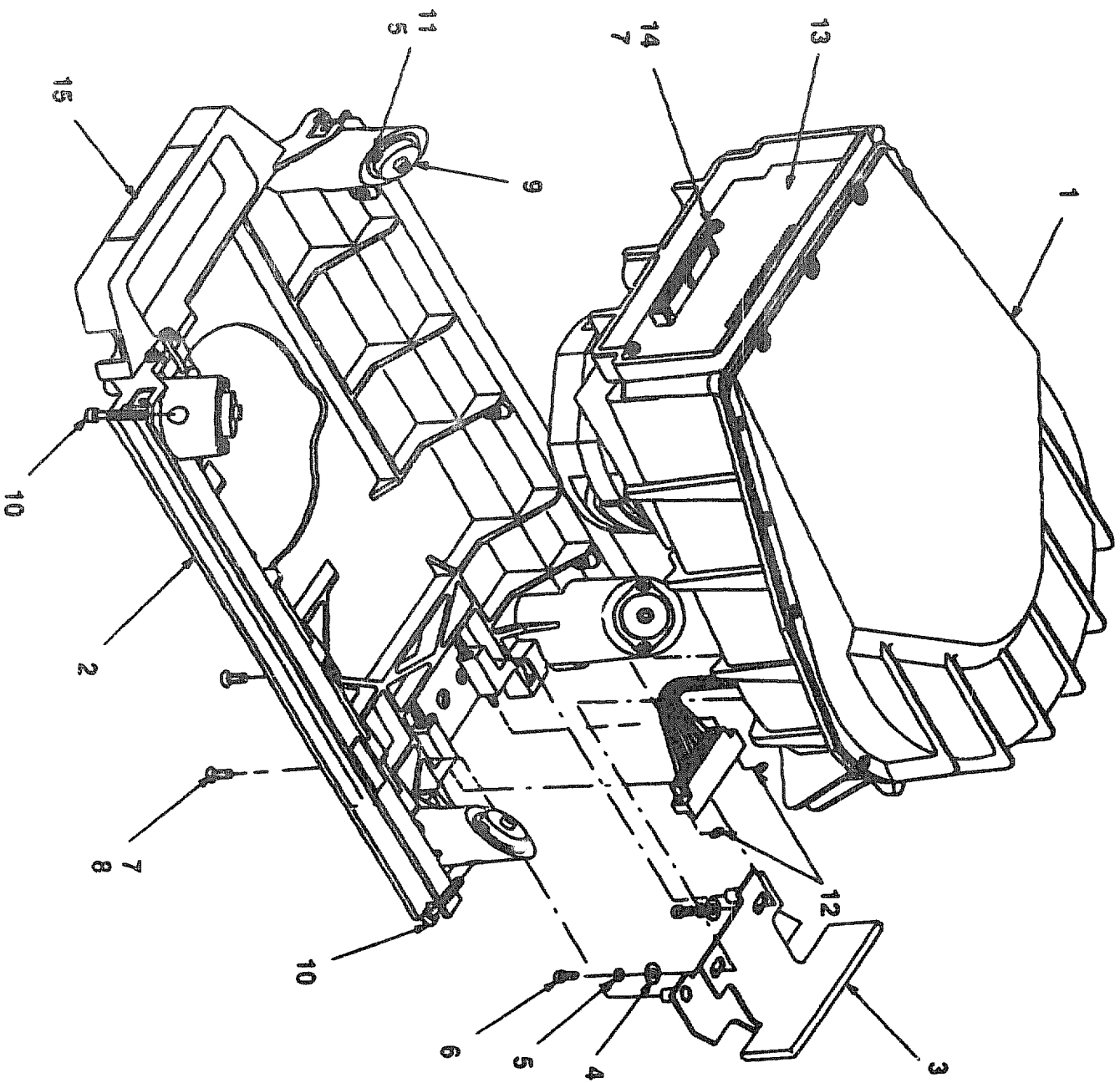


Figure 2. HDA/Carrier Assembly

XRA90-IP-02

IPB-RA90

FIG. & ITEM NO.	DESCRIPTION	K DEC PART NO.	ECO CUT-IN 70-22951 00006	USED ON CODE	REF FIG NO.
2-	HDA/CARRIER ASSEMBLY	70-22951-01			1
1	*HEAD DISK ASSEMBLY	70-22937-01			8
2	*CARRIER ASSEMBLY	70-25690-01			3
3	*Bracket Assembly, Damper	70-25695-01			
4	*Washer, Flat #8	90-06661-00			
5	*Washer, Helical Split #6	90-07901-00			
6	*Screw, Socket Cap Hd No. 6-32 x 3/8	90-06045-08			
7	*Adhesive, Sealant Lo-Strength Thd Lock	49-01344-00			
8	*Screw, 82 Degree Flat Hd No. 6-32 x 5/8	90-06040-02			
9	*Mount, Shock	12-29582-01			
10	*Screw, Sems Phi Truss Hd No. 6-32 x 7/8	90-00049-15			
11	*Screw, Phi Pan Hd No. 6-32 x 5/16	90-06021-01			
12	*Ring, External Retaining	90-09273-00			
13	*Module, Preamp Control	54-17758-01			
14	*Screw, Sems Phi Pan Hd No. 6-32 x 25/64	90-10532-01			
15	*Label, "ESD Graphic"	36-26583-01			
	Label (Not Shown)				
	*Label, "Contamination Seal"	36-27581-03			

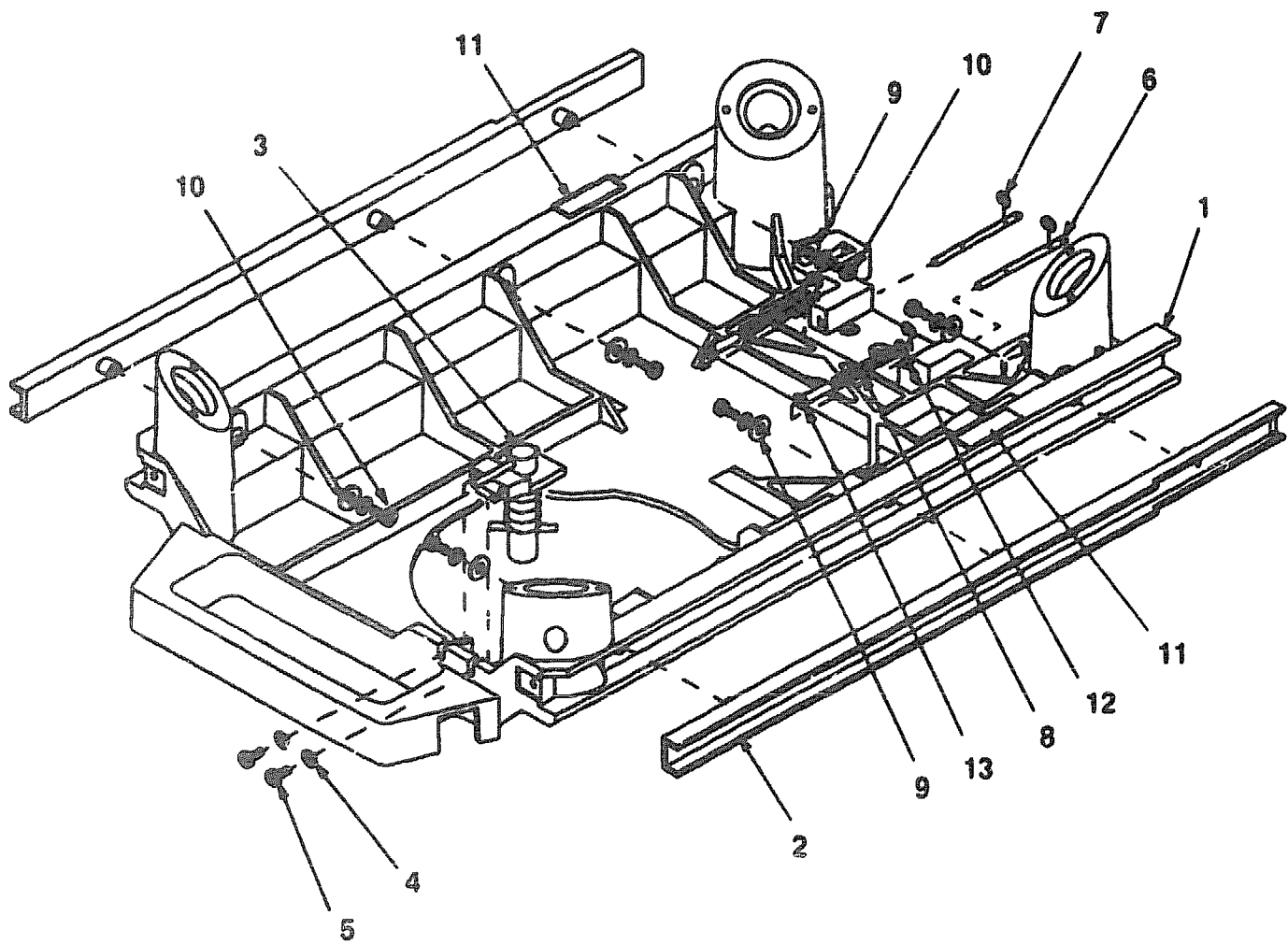


Figure 3. Carrier Assembly

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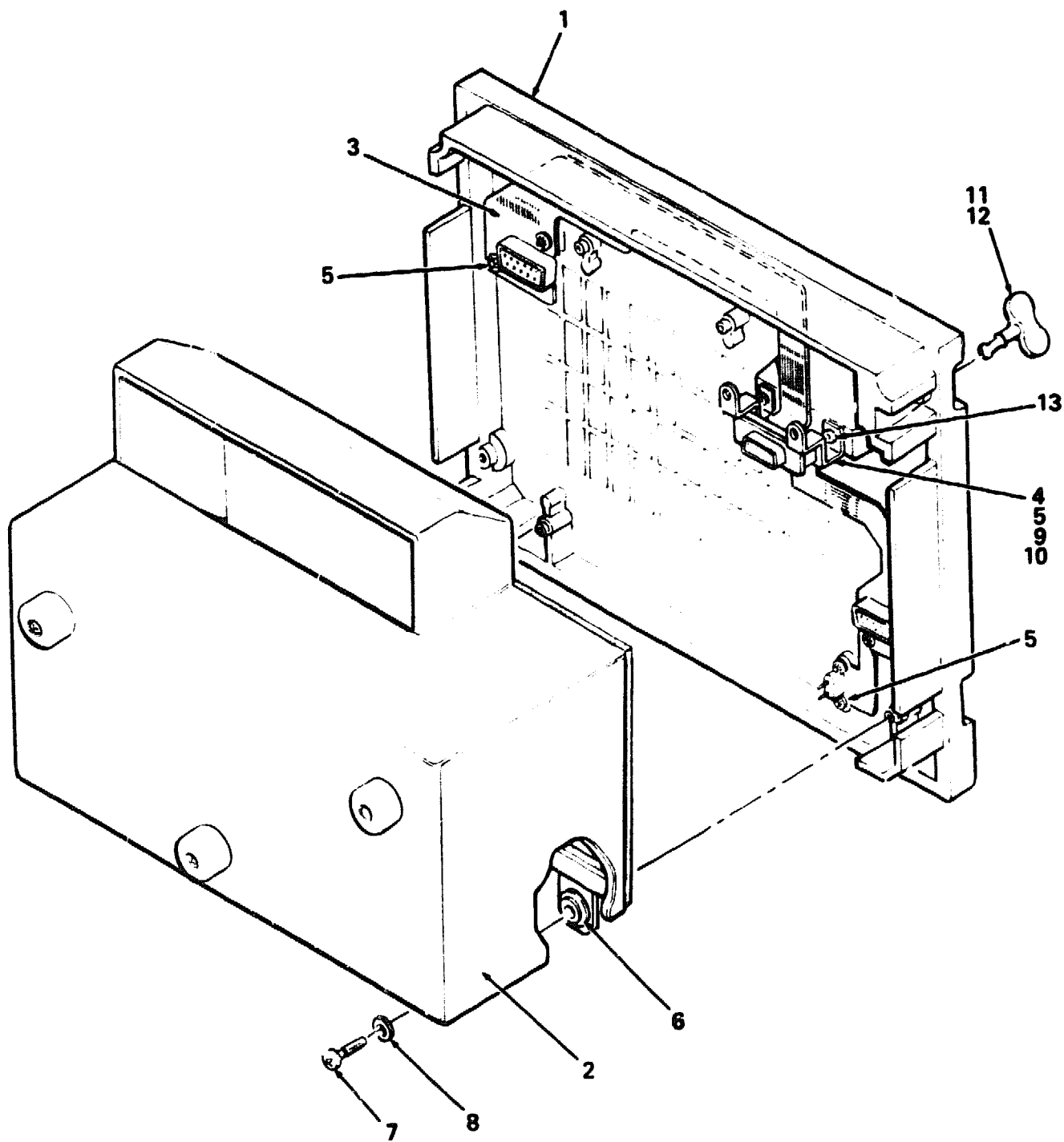
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IPB-RA90



FIG.& ITEM NO.	DESCRIPTION	<sup>C</sup> DEC PART NO.	ECO CUT-IN 70-22951 00004	USED ON CODE	REF FIG NO.
3-	CARRIER ASSEMBLY	70-25890-01			2
1	*Carrier, HDA (Plaster Cast)	74-38181-02			
2	*Sleeve, HDA Carrier	74-38489-01			
3	*Latch Assembly, HDA Carrier	70-25889-01			
4	*Washer, Lock	90-07849-00			
5	*Screw, Phi Pan Hd No. 6-32 x 7/16	90-09800-13			
6	*Pin, Connector Guide (HDA)	74-38854-01			
7	*Ring, Retaining	90-09273-00			
8	*Spring, Compression	12-13656-08			
9	*Washer, Flat #6	90-08659-00			
10	*Screw, Phi Pan Hd No. 6-32 x 5/16	90-09800-02			
11	*Pad, Snubber w/Adhesive	12-27957-04			
12	*Washer, Flat	90-10898-01			
13	*Sleeve, Flanged 0.130 I.D.	74-37253-01			
	Label (Not Shown)				
	*Label, "Part Number Rev ECO"	90-09255-05			

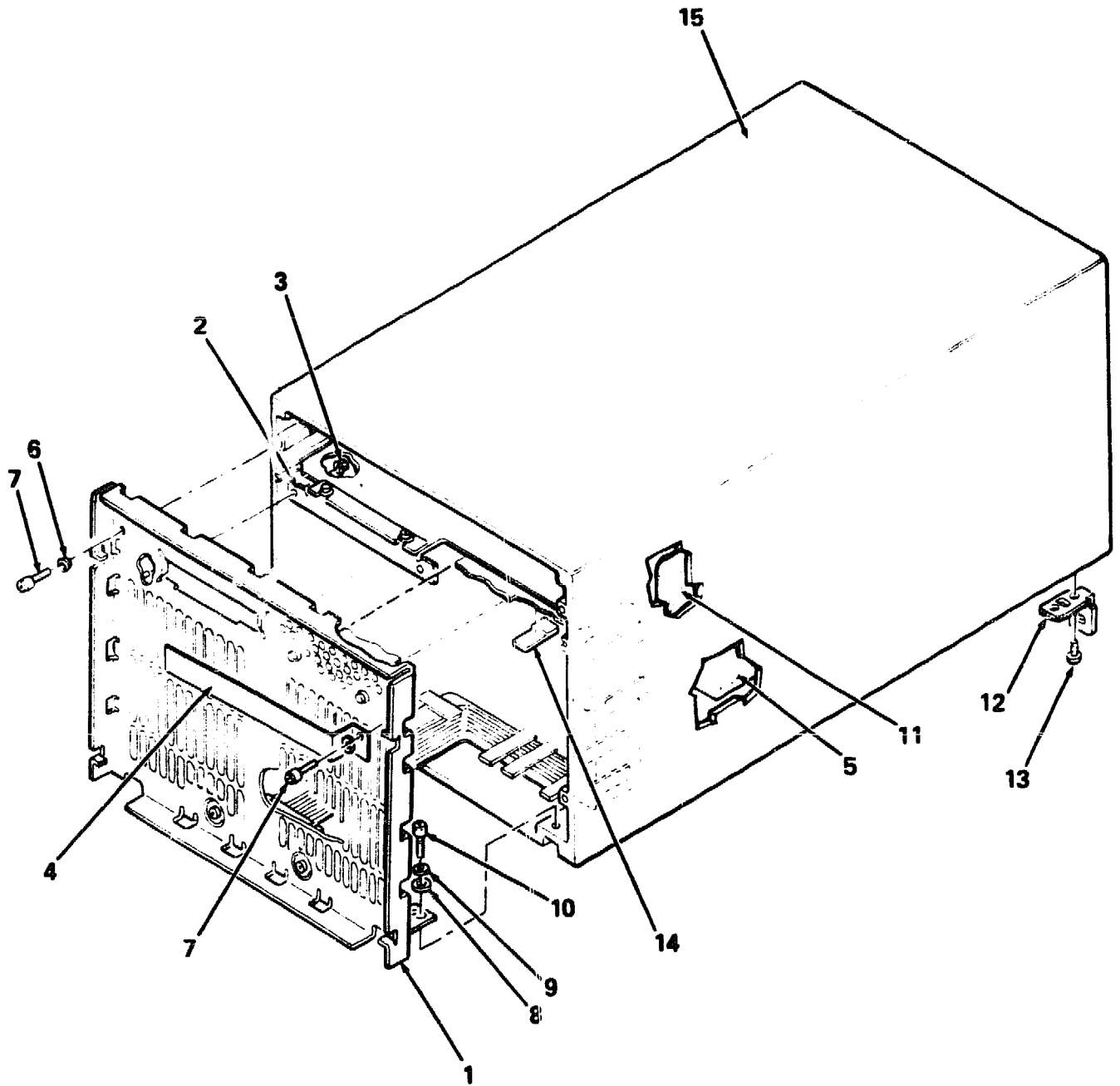




RA90-04

Figure 4. Blower Bezel Assembly

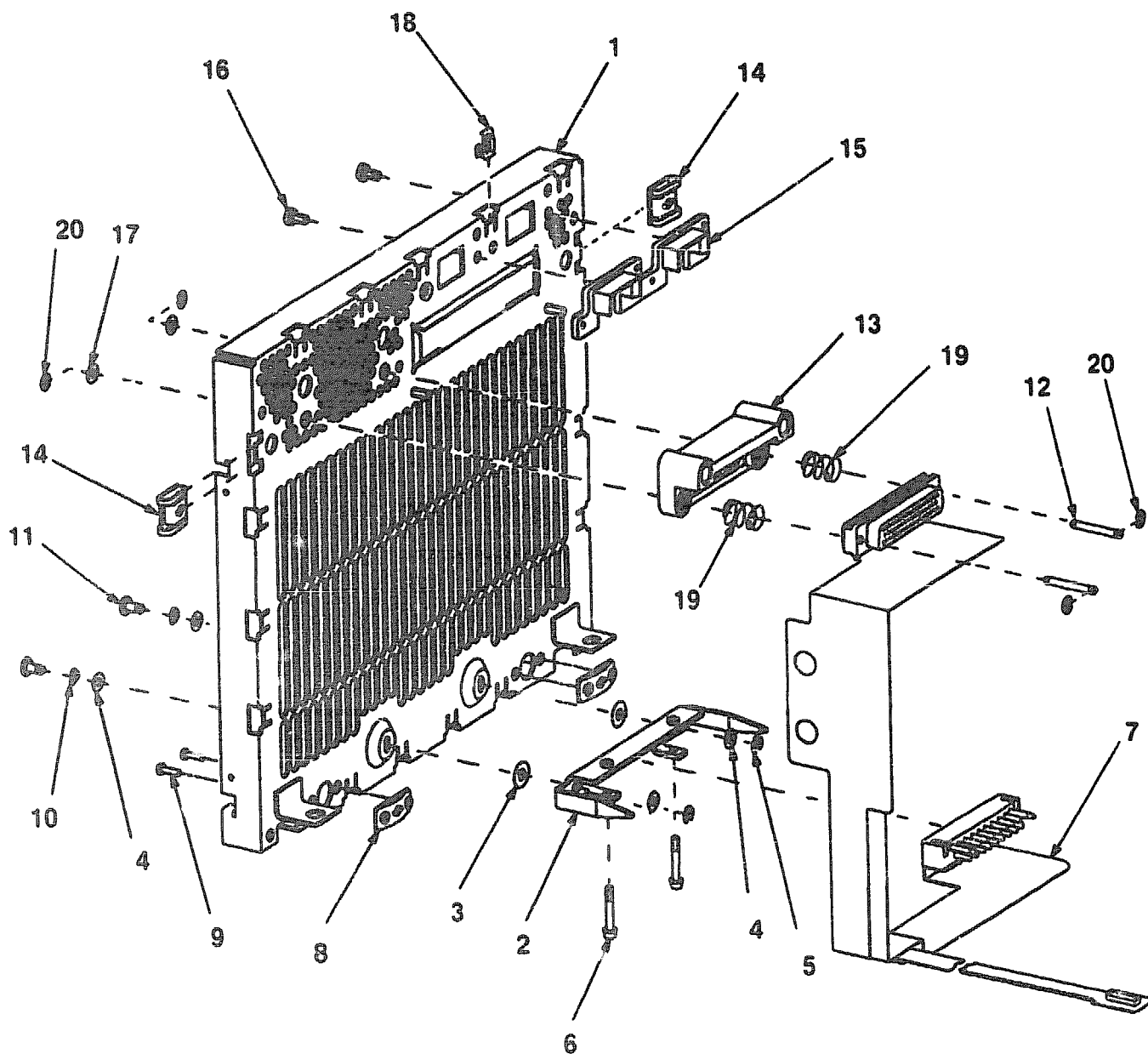
FIG. & ITEM NO.	DESCRIPTION	<sup>C</sup> DEC PART NO.	ECO CUT-IN 70-22939 00001	USED ON CODE	REF FIG NO.
4-	BLOWER/BEZEL ASSEMBLY	70-22939-01			1
1	*Bezel	74-31358-02			
2	*Blower Assembly, DC Brushless	12-23970-01			
3	*Cable Assembly, Flex Circuit	17-01278-01			
4	*Bracket, Front Connector Alignment	74-31358-01			
5	*Ring, External Retainer	90-10318-00			
6	*Grommet, Vibration Isolator	12-19688-02			
7	*Screw, Phil Pan Hd No. 6-32 x 1/2	90-10089-03			
8	*Washer, Flat	90-08659-00			
9	*Washer, Flat Nylon	90-00003-09			
10	*Washer, Flat Mylar	90-10241-08			
11	*Fastener, 1/4 Turn Wing	90-00026-11			
12	*Retainer, Thermoplastic Push-On	90-10681-01			
13	*Rivet, Repetition Taper Dome .094 Dia	90-00053-15			
	Label (Not Shown)				
	*Label, "Warning ESD"	38-24513-01			
	Miscellaneous Parts (Not Shown)				
	*Cap, Bezel Connector	74-38124-01			



RA90-05

Figure 5. Chassis Assembly

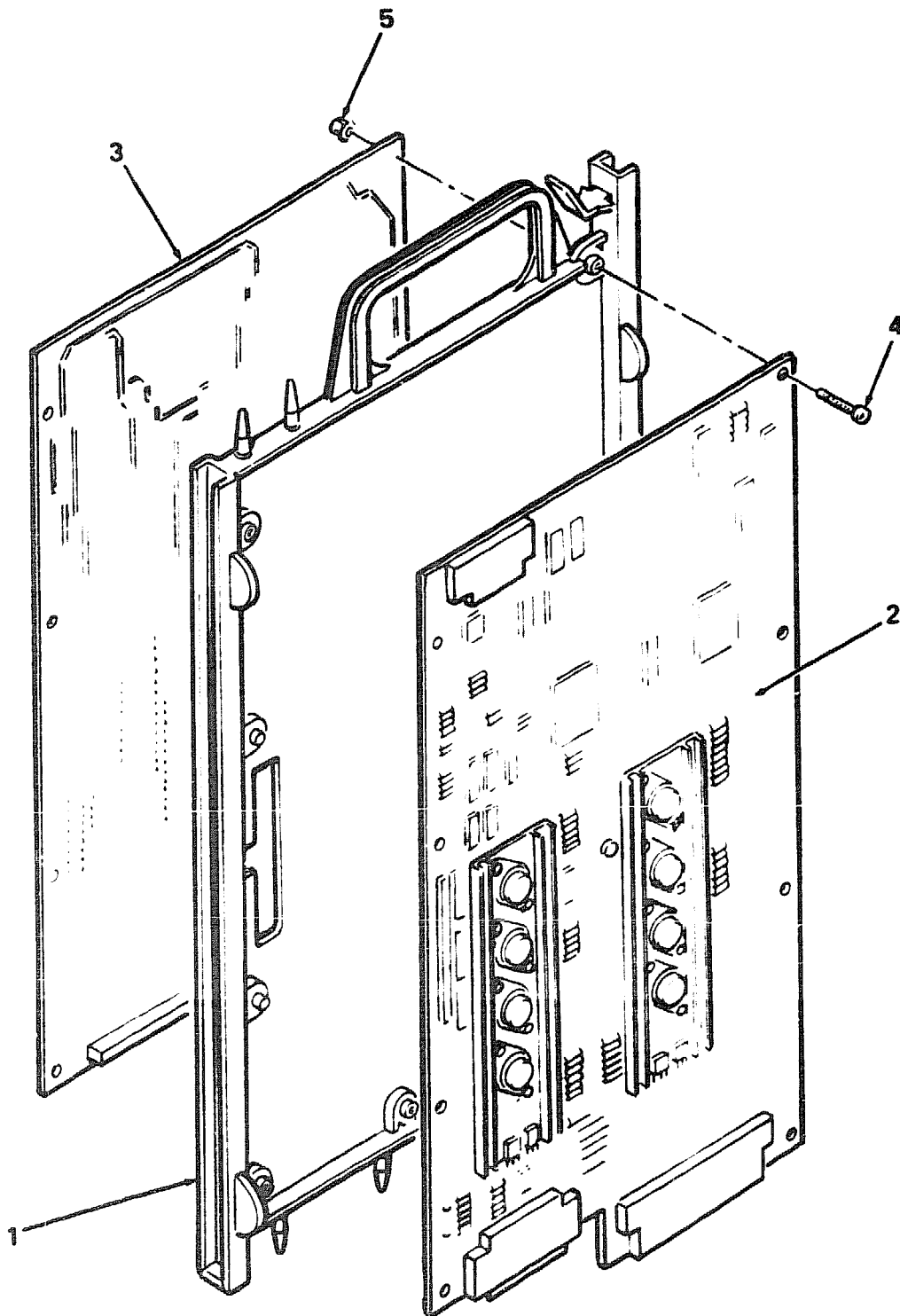
FIG.& ITEM NO.	DESCRIPTION	<sup>E</sup> DEC PART NO.	ECO CUT-IN 70-22940 00002	USED ON CODE	REF FIG NO.
5-	CHASSIS ASSEMBLY	70-22940-01			1
1	*PANEL ASSEMBLY, REAR (NEW)	70-22941-01			6
2	*Plate Assembly, Divider	70-24434-01			
3	*Nut, Kep No. 6-32 x 1/4	90-08185-00			
4	*Bracket, Serial Label	74-35861-01			
5	*Pad, Snubber w/ Adhesive	12-27957-02			
6	*Washer, Helical Split No. 8	90-06690-00			
7	*Screw, Socket Cap Hex Hd No. 8-32 x 25/64	90-06337-08			
8	*Washer, Flat	90-10509-01			
9	*Washer, Helical Split	90-10377-01			
10	*Screw, Socket Cap Hex Hd No. 10-32 x 5/16	90-08330-08			
11	*Pad, Snubber w /Adhesive	12-27957-01			
12	*Retainer, Chassis	74-32804-01			
13	*Screw, Sems Phi Truss Hd No. 10-32 x 3/8	90-00049-18			
14	*Clamp, Cable	12-24804-01			
15	*Weldment, Chassis	70-21586-01			
	Label (Not Shown)				
	*Label, "Part Number Rev Mfg. ECO"	90-09255-05			



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Figure 6. Panel Assembly, Rear

FIG. & ITEM NO.	DESCRIPTION	DEC PART NO.	ECO CUT-IN 70-22841 00001	USED ON CODE	REF FIG NO.
9-	PANEL ASSEMBLY, REAR (NEW)	70-22841-01			5
1	*Plate, Rear Interface	74-31924-01			
2	*Bracket, Lower Connector Alignment	74-31357-01			
3	*Washer, Flat Mylar	90-10241-08			
4	*Washer, Flat Nylon	90-00003-11			
5	*Ring, External Retaining	90-10121-01			
6	*Screw, Sems Pan Torx No. 4-40 x 3/4	90-00049-81			
7	*Circuit Assembly, Rear Flex	17-01277-01			
8	*Receptacle, Spring	90-08197-02			
9	*Rivet, Repetition Taper	90-00053-50			
10	*Washer, Curved Spring	90-10887-01			
11	*Pin, Connector Bracket	74-31388-01			
12	*Screw, Sems Pan Torx No. 4-40 x 7/16	90-00049-83			
13	*Bracket, Rear Connector Alignment	74-37088-01			
14	*Receptacle, Clip-On	90-10434-01			
15	*Guide, SI Connector	74-36480-01			
16	*Screw, Sems Phi Pan Hd No. 6-32 x 1/4	90-10174-00			
17	*Washer, Flat Nylon	90-00003-18			
18	*Contact, Spring	74-32040-01			
19	*Spring, Compression	12-27444-08			
20	*Ring, External Retaining	90-09273-01			

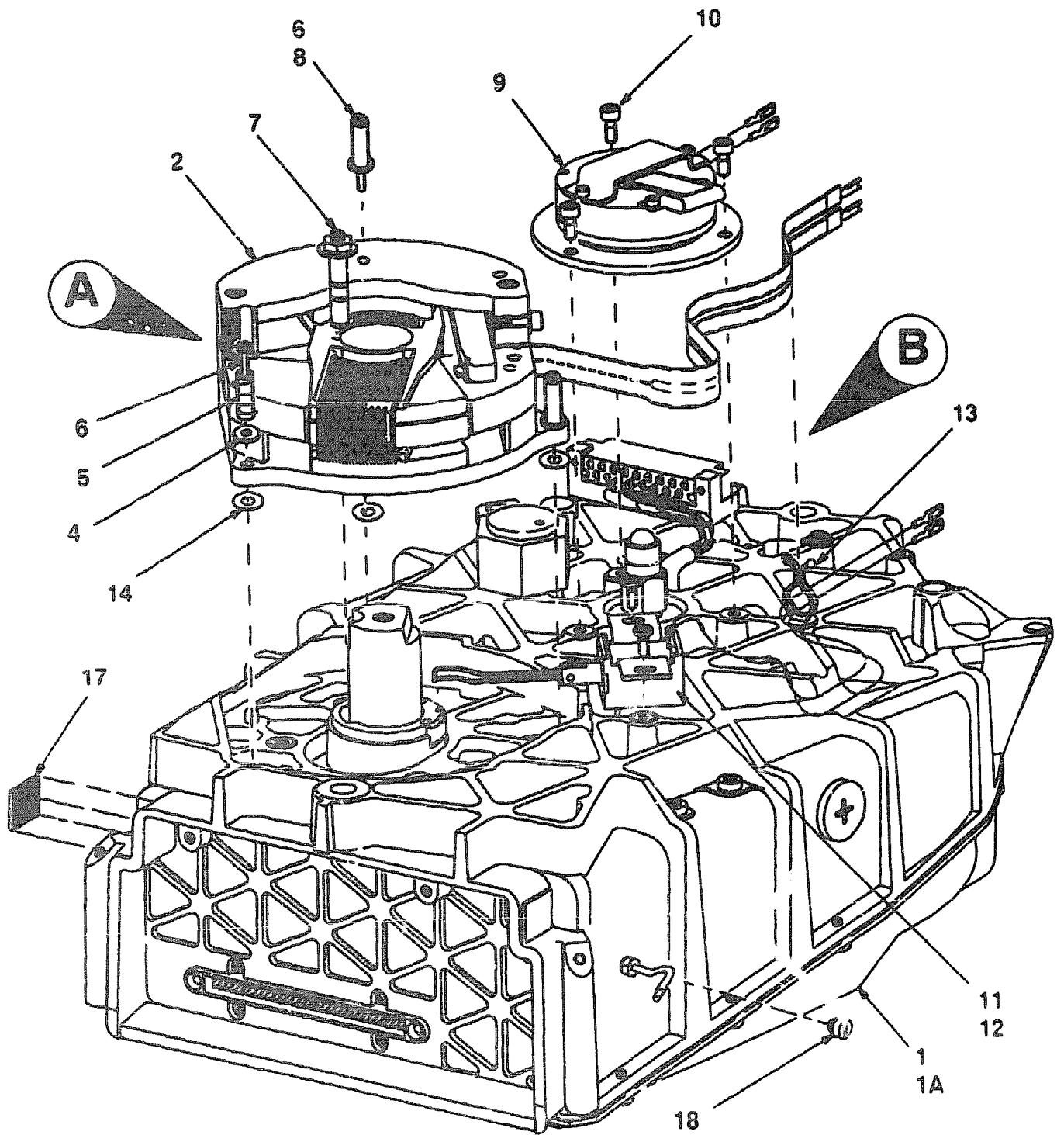


RA90-07

Figure 7. Module. Electronic Control

FIG.& ITEM NO.	DESCRIPTION	DEC PART NO.	ECO CUT-IN 70-23899 00018	USED ON CODE	REF FIG NO.
7-	MODULE, ELECTRONIC CONTROL	70-22942-01			1
1	*Carrier/Shield Assembly	74-29929-02			
2	*Module, Servo (See Note)	54-17769-01			
3	*Module, I/O R/W (See Note)	54-17771-01			
4	*Screw, Sems Phl Pan Hd No. 6-32 x 3/4	90-00049-57			
5	*Nut, Kep No 10-32 x 1/4	90-08185-00			
	Label (Not Shown)				
	*Label, "ESD Graphic"	36-26583-01			
	Note: These modules cannot be ordered separately. Order 70-22942-01.				

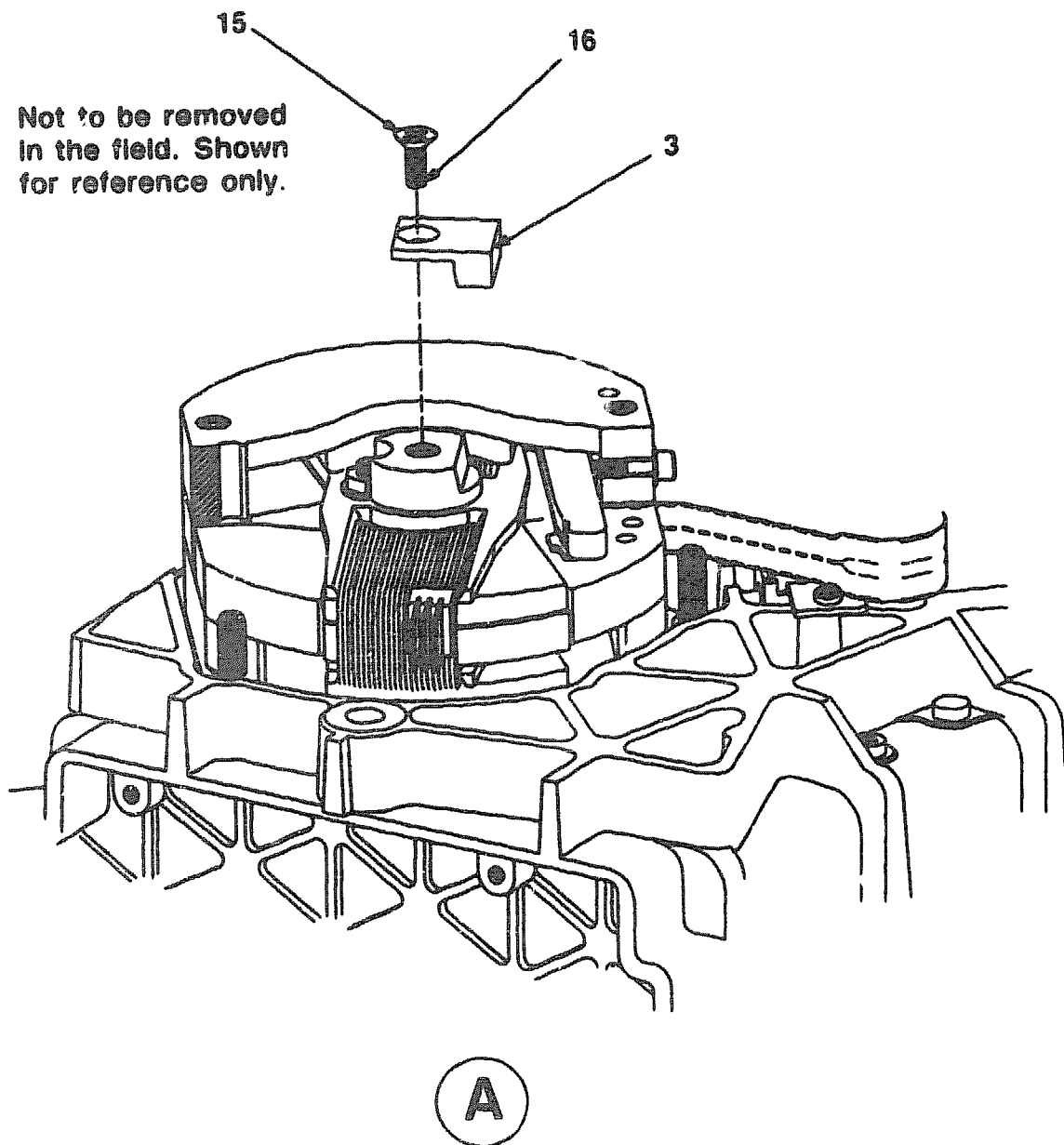




(Item 18 not to be removed in the field.)

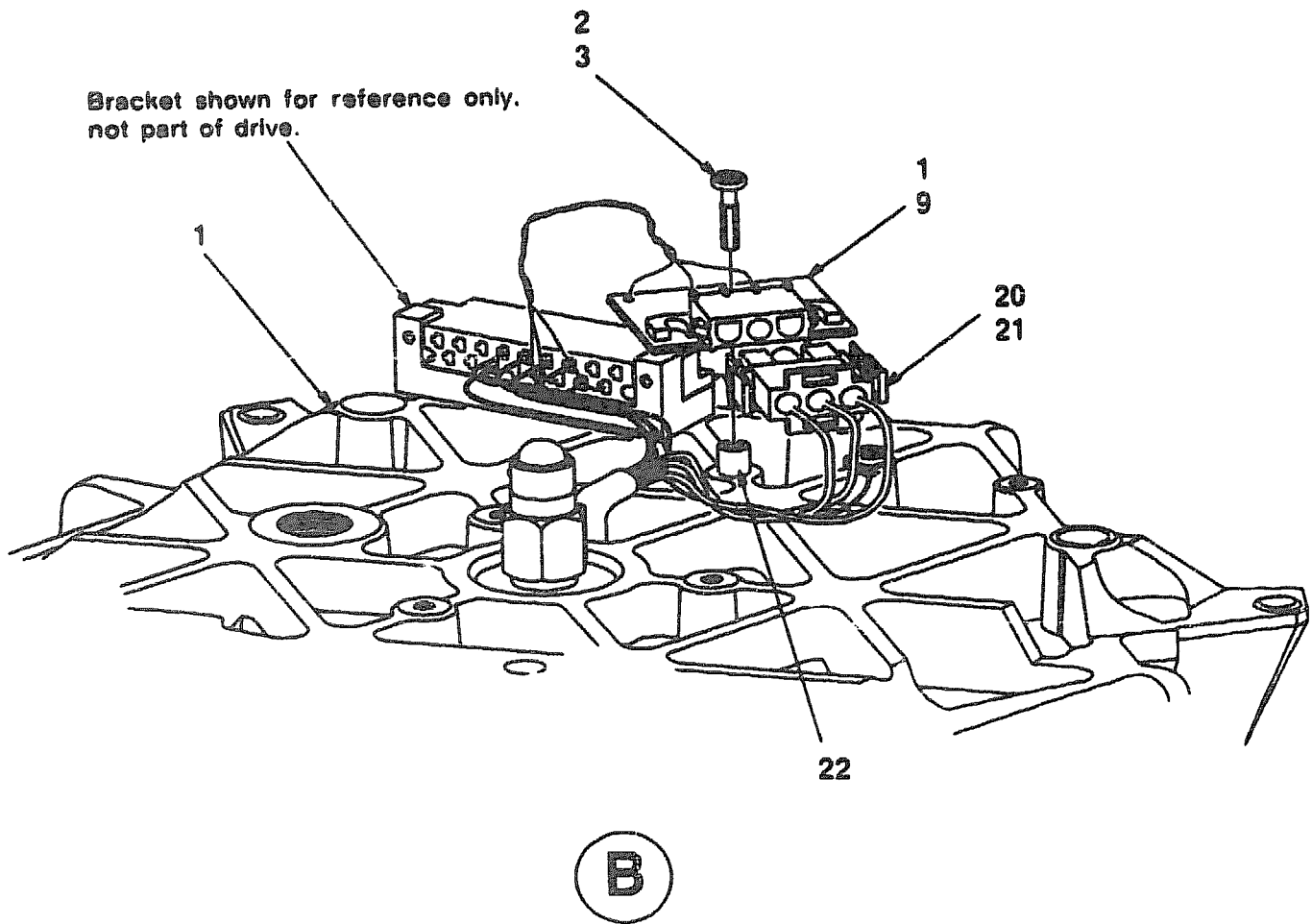
XRA90-IP-08

Figure 8. Head Disk Assembly (Sheet 1 of 3)



XRA90-IP-08A

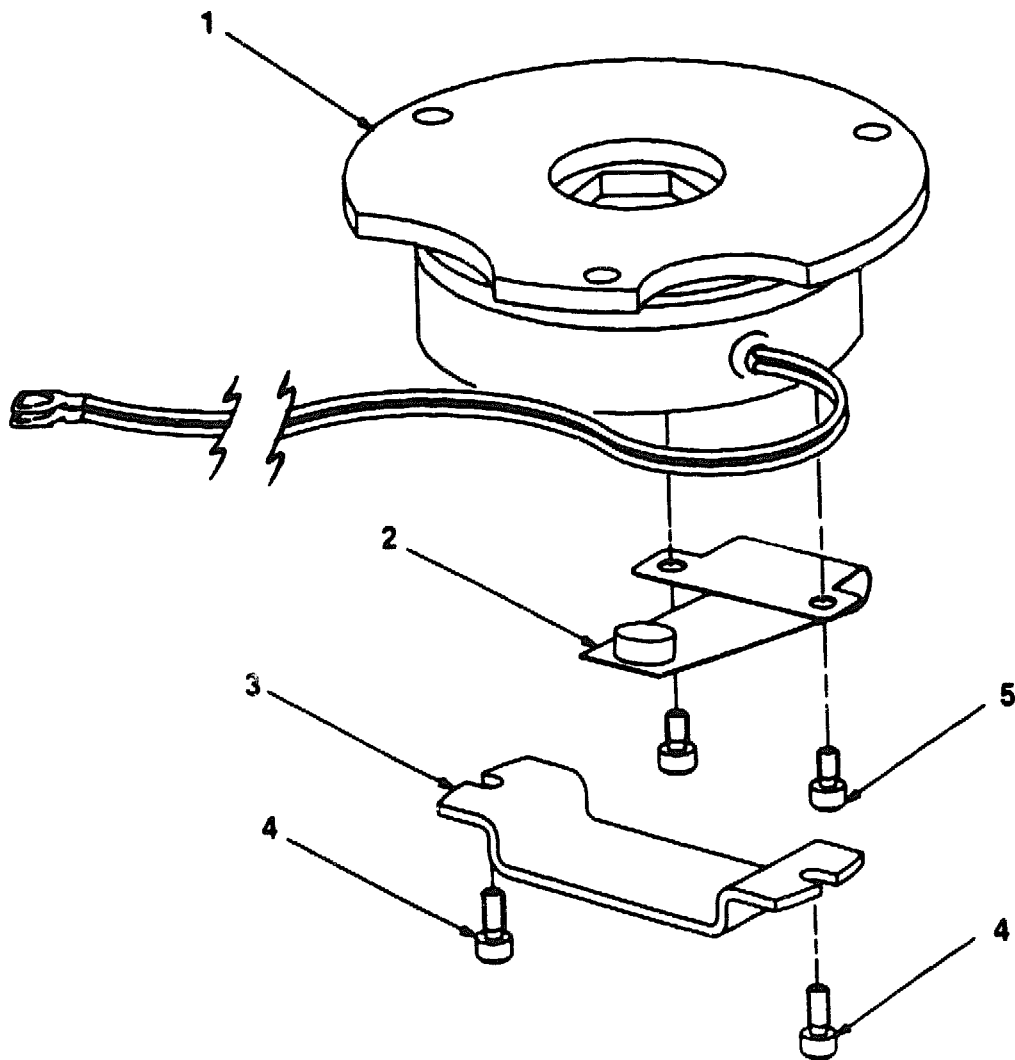
Figure 8. Head Disk Assembly (Sheet 2 of 3)



XRA90-IP-08B

Figure 8. Head Disk Assembly (Sheet 3 of 3)

FIG. & ITEM NO.	DESCRIPTION	L DEC PART NO.	ECO CUT-IN 70-22937 00003	USED ON CODE	REF FIG NO.
8-	HEAD DISK ASSEMBLY	70-22937-01			2
1	*HDA/Filter/Cover Assembly	70-24424-01			
1A	**Connector, Baseplate (Not Shown)	12-24985-01			
2	*Actuator Assembly	70-22927-01			
3	*Balance, Actuator Counter	74-38482-01			
4	*Washer, Flat SST	90-08172-00			
5	*Spring, Compression	12-28772-01			
6	*Screw, Phi Pan Hd No. 4-40 x 1-1/4	90-08018-01			
7	*Bolt, Blind Expanding Diameter	12-26090-01			
8	*Adhesive, Locktite 222 Sealant	49-01344-00			
9	*BRAKE ASSEMBLY	70-23210-01			9
10	*Screw, Socket Cap Hd No. 8-32 x 21/64	90-08337-08			
11	*Retractor/Solenoid Assembly	70-23897-01			
12	*Screw, Machine Pan Hd No. 8-32 x 3/8	12-22682-02			
13	*Tie, Ribbed Mount Cable	90-10605-02			
14	*Washer, Flat Mylar	90-10241-04			
15	*Screw, 82 Degrees Flat Hd No. 10-32 x 1/2	90-06073-02			
16	*Adhesive, Anaerobic Resin Base	49-01093-00			
17	*Pad, Bumper	12-27957-03			
18	*Screw, Gasket Plug No. 10-32	90-10684-01			
19	*Module, Motor Noise Filter	54-18844-01			
20	*Terminal, 3 Socket Housing Mate-N-Lok	12-12167-15			
21	*Connector, Socket Housing 3 Pin Mate-N-Lok	12-28922-01			
22	*Spacer, Round Fiber, .138 ID x .250 LG	90-07615-00			
23	*Screw, Machine Phi Pan Hd No. 8-32 x 5/8	90-08025-01			
	<p>Note: Items 19 through 23 are not included on all HDA's. Electrical functionality is installed internal to the HDA on some units.</p>				

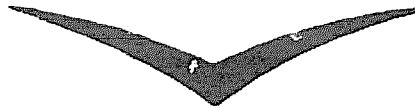


XRA90-IP-09

Figure 9. Brake Assembly

FIG. & ITEM NO.	DESCRIPTION	A DEC PART NO.	ECO CUT-IN 70-23210 00000	USED ON CODE	REF FIG NO.
9-	BRAKE ASSEMBLY	70-23210-01			8
1	*Spindle. Brake	12-25348-01			
2	*Brush Assembly. Ground	70-25698-01			
3	*Shield. Ground Brush	74-32552-01			
4	*Screw. Soc Hd Cap No. 4-40 x 1/4	90-06009-08			
5	*Screw. Soc Hd Cap No. 4-40 x 3/16	90-00042-09			

PART NUMBER/DESCRIPTION SORT



# RA90 DISK DRIVE ASSEMBLY SORT BY DEC PART NUMBER

PART NO.	DESCRIPTION	FIG. NO.	ITEM
12-12167-15	Terminal, 3 Socket Housing Mate-N-Lok	8	20
12-13656-08	Spring, Compression	3	8
12-19686-02	Grommet, Vibration Isolator	4	6
12-22662-02	Screw, Machine Pan Hd No. 6-32 x 3/8	8	12
12-23970-01	Blower Assembly, DC Brushless	4	2
12-24804-01	Clamp, Cable	5	14
12-24965-01	Connector, Baseplate	8	1A
12-25348-01	Spindle, Brake	9	1
12-26090-01	Bolt, Blind Expanding Diameter	8	7
12-27444-05	Spring, Compression	6	19
12-27957-01	Pad, Snubber w/Adhesive	5	11
12-27957-02	Pad, Snubber w/Adhesive	5	5
12-27957-03	Pad, Bumper	8	17
12-27957-04	Pad, Snubber w/Adhesive	3	11
12-28772-01	Spring, Compression	8	5
12-28922-01	Connector, Socket Housing 3 Pin Mate-N-Lok	8	21
12-29582-01	Mount, Shock	2	9
17-00083-23	Cord, 120V/60Hz Line	1	Not Shown
17-00083-24	Cord, 240V/50Hz Line	1	Not Shown
17-00442-19	Cord, 9' 15 Amp Power (IEC)	1	Not Shown
17-01277-01	Circuit Assembly, Rear Flex	6	7
17-01278-01	Cable Assembly, Flex Circuit	4	3
17-01482-01	Cable Assembly, Triaxial 93 Ohm 4 Conductor SI	1	8
17-01547-01	Cable Assembly, 40 Cond. Shielded Jumper	1	2
29-26655-00	Tool, AMP Insert/Extract	1	Not Shown
30-23506-01	Power Supply, 5.1V 9.7A Switching (H7142)	1	6
30-24453-01	Panel, Operator Control w/Components	1	5
36-24513-01	Label, "Warning ESD"	4	Not Shown
36-26583-01	Label, "ESD Graphic"	2	15
36-26583-01	Label, "ESD Graphic"	7	6
36-27581-03	Label, "Contamination Seal"	2	Not Shown
36-30022-01	Label, "Product RA90 Made in USA"	1	Not Shown
36-30022-02	Label, "Product RA90 Made in Germany"	1	Not Shown
49-01093-00	Adhesive, Anaerobic Resin Base	8	16
49-01344-00	Adhesive, Loctite 222 Sealant	8	8
49-01344-00	Adhesive, Sealant Lo-Strength Thd Lock	2	7
54-17758-01	Module, Preamp Control (PCM)	2	13
54-17769-01	Module, Servo	7	2
54-17771-01	Module, I/O R/W	7	3
54-18644-01	Module, Motor Noise Filter	8	19



# RA90 DISK DRIVE ASSEMBLY SORT BY DEC PART NUMBER

PART NO.	DESCRIPTION	FIG. NO.	ITEM
70-19074-01	Connector, SDI Loopback (Test)	1	Not Shown
70-21586-01	Weldment, Chassis	5	15
70-22927-01	Actuator Assembly	8	2
70-22937-01	HEAD DISK ASSEMBLY	8	N/A
70-22937-01	HDA ASSEMBLY	2	1
70-22939-01	BLOWER/BEZEL ASSEMBLY	4	N/A
70-22939-01	BLOWER/BEZEL ASSEMBLY	1	4
70-22940-01	CHASSIS ASSEMBLY	5	N/A
70-22940-01	CHASSIS ASSEMBLY	1	7
70-22941-01	PANEL ASSEMBLY, REAR (NEW)	6	N/A
70-22941-01	PANEL ASSEMBLY, REAR	5	1
70-22942-01	MODULE, ELECTRONIC CONTROL (ECM)	1	3
70-22942-01	MODULE, ELECTRONIC CONTROL	7	N/A
70-22951-01	HDA/CARRIER ASSEMBLY	1	1
70-22951-01	HDA/CARRIER ASSEMBLY	2	N/A
70-23210-01	BRAKE ASSEMBLY	9	N/A
70-23210-01	BRAKE ASSEMBLY	8	9
70-23897-01	Retractor/Solenoid Assembly	8	11
70-23899-01	RA90 DISK DRIVE ASSEMBLY	1	N/A
70-24424-01	HDA/Filter/Cover Assembly	8	1
70-24434-01	Plate Assembly, Divider	5	2
70-25689-01	Latch Assembly, HDA Carrier	3	3
70-25690-01	CARRIER ASSEMBLY	2	2
70-25690-01	CARRIER ASSEMBLY	3	N/A
70-25695-01	Bracket Assembly, Damper	2	3
70-25698-01	Brush Assembly, Ground	9	2
74-29929-02	Carrier/Shield Assembly	7	1
74-31356-02	Bezel	4	1
74-31357-01	Bracket, Lower Connector Alignment	6	2
74-31358-01	Bracket, Front Connector Alignment	4	4
74-31368-01	Pin, Connector Bracket	6	11
74-31924-01	Plate, Rear Interface	6	1
74-32040-01	Contact, Spring	6	18
74-32552-01	Shield, Ground Brush	9	3
74-32804-01	Retainer, Chassis	5	12
74-35861-01	Bracket, Serial Label	5	4
74-36161-02	Carrier, HDA (Plaster Cast)	3	1
74-36460-01	Guide, SI Connector	6	15
74-36462-01	Balance, Actuator Counter	3	3
74-36469-01	Sleeve, HDA Carrier	3	2
74-36854-01	Pin, Guide (HDA) Connector	3	6
74-37086-01	Bracket, Rear Connector Alignment	6	13
74-37253-01	Sleeve, Flanged 0 130 I.D.	3	13
74-38124-01	Cop. Bezel Connector	4	Not Shown

RA90 DISK DRIVE ASSEMBLY SORT BY DEC PART NUMBER

PART NO.	DESCRIPTION	FIG. NO.	ITEM
90-00003-09	Washer, Flat Nylon	4	9
90-00003-11	Washer, Flat Nylon	6	4
90-00003-16	Washer, Flat Nylon	6	17
90-00026-11	Fastener, 1/4 Turn Wing	4	11
90-00042-09	Screw, Soc Hd Cap No. 4-40 x 3/16	9	5
90-00049-15	Screw, Sems Phl Truss Hd No. 6-32 x 7/8	2	10
90-00049-18	Screw, Sems Phl Truss Hd No. 10-32 x 3/8	5	13
90-00049-57	Screw, Sems Phl Pan Hd No. 6-32 x 3/4	7	4
90-00049-61	Screw, Sems Pan Torx No. 4-40 x 3/4	6	6
90-00049-63	Screw, Sems Pan Torx No. 4-40 x 7/16	6	12
90-00053-15	Rivet, Repetition Taper Dome .094 Dia	4	13
90-00053-50	Rivet, Repetition Taper	6	9
90-06009-08	Screw, Soc Hd Cap No. 4-40 x 1/4	9	4
90-06018-01	Screw, Phl Pan Hd No. 4-40 x 1-1/4	8	6
90-06021-01	Screw, Phl Pan Hd No. 6-32 x 5/16	2	11
90-06025-01	Screw, Machine Phl Pan Hd No. 6-32 x 5/8	8	23
90-06040-02	Screw, 82 Degree Flat Hd No. 8-32 x 5/8	2	8
90-06073-02	Screw, 82 Degrees Flat Hd No. 10-32 x 1/2	8	15
90-06337-08	Screw, Socket Cap Hex Hd No. 8-32 x 25/64	5	7
90-06337-08	Screw, Socket Cap Hd No. 8-32 x 21/64	8	10
90-06659-00	Washer, Flat #6	3	9
90-06659-00	Washer, Flat	4	8
90-06661-00	Washer, Flat #8	2	4
90-06690-00	Washer, Helical Split No. 8	5	6
90-07615-00	Spacer	8	22
90-07649-00	Washer, Lock	3	4
90-07601-00	Washer, Helical Split #6	2	5
90-08045-08	Screw, Socket Cap Hd No. 6-32 x 3/8	2	6
90-08172-00	Washer, Flat SST	8	4
90-08185-00	Nut, Kep No. 10-32 x 1/4	7	5
90-08185-00	Nut, Kep No. 6-32 x 1/4	5	3
90-08197-02	Receptacle, Spring	6	8
90-08330-08	Screw, Socket Cap Hex Hd No. 10-32 x 5/16	5	10
90-09255-05	Label, "Part Number Rev ECO"	3	Not Shown
90-09255-05	Label, "Part Number Rev Mfg. ECO"	5	Not Shown
90-09273-00	Ring, External Retaining	2	12
90-09273-00	Ring, Retaining	3	7
90-09273-01	Ring, External Retaining	6	20
90-09800-02	Screw, Phl Pan Hd No. 6-32 x 5/16	3	10
90-09800-13	Screw, Phl Pan Hd No. 6-32 x 7/16	3	5
90-10089-03	Screw, Phl Pan Hd No. 6-32 x 1/2	4	7
90-10121-01	Ring, External Retaining	6	5
90-10174-00	Screw, Sems Phl Pan Hd No. 6-32 x 1/4	6	16
90-10241-04	Washer, Flat Mylar	8	14
90-10241-06	Washer, Flat Mylar	4	10

# RA90 DISK DRIVE ASSEMBLY SORT BY DEC PART NUMBER

PART NO.	DESCRIPTION	FIG. NO.	ITEM
90-10241-06	Washer, Flat Mylar	6	3
90-10318-00	Ring, External Retainer	4	5
90-10377-01	Washer, Helical Split	5	9
90-10434-01	Receptacle, Clip-On	6	14
90-10509-01	Washer, Flat	5	8
90-10532-01	Screw, Sems Phl Pan Hd No. 6-32 x 25/64	2	14
90-10605-02	Tie, Ribbed Mount Cable	8	13
90-10664-01	Screw, Gasket Plug No. 10-32	8	18
90-10681-01	Retainer, Thermoplastic Push-On	4	12
90-10687-01	Washer, Curved Spring	6	10
90-10898-01	Washer, Flat	3	12
99-06086-21	Desiccant	1	Not Shown
99-08190-01	Sheet, Barrier/Laminate	1	Not Shown
99-08191-02	Bag, RA90 HDA Barrier	1	Not Shown
99-08191-03	Bag, RA90 Add-On Barrier	1	Not Shown
99-08191-04	Bag, 60 Inch Cab Barrier	1	Not Shown
99-08191-05	Bag, 40 Inch Cab Barrier	1	Not Shown
99-08258-01	Tape, 100 MPH Duct	1	Not Shown
99-08260-02	Bag, RA90 HDA Cushioned	1	Not Shown

# RA90 DISK DRIVE ASSEMBLY SORTED BY DEC PART DESCRIPTION

DESCRIPTION	DEC PART NO.	FIG. NO.	ITEM
Actuator Assembly	70-22927-01	8	2
Adhesive, Anaerobic Resin Base	49-01093-00	8	16
Adhesive, Loctite 222 Sealant	49-01344-00	8	8
Adhesive, Sealant Lo-Strength Thd Lock	49-01344-00	2	7
Bag, 40 Inch Cab Barrier	99-08191-05	1	Not Shown
Bag, 60 Inch Cab Barrier	99-08191-04	1	Not Shown
Bag, RA90 Add-On Barrier	99-08191-03	1	Not Shown
Bag, RA90 HDA Barrier	99-08191-02	1	Not Shown
Bag, RA90 HDA Cushioned	99-08260-02	1	Not Shown
Balance, Actuator Counter	74-36462-01	8	3
Bezel	74-31356-02	4	1
Blower Assembly, DC Brushless	12-23970-01	4	2
BLOWER/BEZEL ASSEMBLY	70-22939-01	4	N/A
BLOWER/BEZEL ASSEMBLY	70-22939-01	1	4
Bolt, Blind Expanding Diameter	12-26090-01	8	7
Bracket Assembly, Damper	70-25695-01	2	3
Bracket, Front Connector Alignment	74-31358-01	4	4
Bracket, Lower Connector Alignment	74-31357-01	6	2
Bracket, Rear Connector Alignment	74-37086-01	6	13
Bracket, Serial Label	74-35861-01	5	4
BRAKE ASSEMBLY	70-23210-01	8	9
BRAKE ASSEMBLY	70-23210-01	9	N/A
Brush Assembly, Ground	70-25698-01	9	2
Cap, Bezel Connector	74-38124-01	4	Not Shown
Cable Assembly, 40 Cond. Shielded Jumper	17-01547-01	1	2
Cable Assembly, Flex Circuit	17-01278-01	4	3
Cable Assembly, Triaxial 93 Ohm 4 Conductor SI	17-01482-01	1	8
CARRIER ASSEMBLY	70-25690-01	2	2
CARRIER ASSEMBLY	70-25690-01	3	N/A
Carrier, HDA (Plaster Cast)	74-36161-02	3	1
Carrier/Shield Assembly	74-29929-02	7	1
CHASSIS ASSEMBLY	70-22940-01	5	N/A
CHASSIS ASSEMBLY	70-22940-01	1	7
Circuit Assembly, Rear Flex	17-01277-01	6	7
Clamp, Cable	12-24804-01	5	14
Connector, Baseplate	12-24965-01	8	1A
Connector, SDI Loopback (Test)	70-19074-01	1	Not Shown
Connector, Socket Housing 3 Pin Mate-N-Lok	12-28922-01	8	21
Contact, Spring	74-32040-01	6	18
Cord, 120V/60Hz Line	17-00083-23	1	Not Shown
Cord, 240V/50Hz Line	17-00083-24	1	Not Shown
Cord, 9' 15 Amp Power (IEC)	17-00442-19	1	Not Shown
Desiccant	99-06086-21	1	Not Shown
Fastener, 1/4 Turn Wing	90-00026-11	4	11

# RA90 DISK DRIVE ASSEMBLY SORTED BY DEC PART DESCRIPTION

DESCRIPTION	DEC PART NO.	FIG. NO.	ITEM
Grommet, Vibration Isolator	12-19686-02	4	6
Guide, SI Connector	74-36460-01	6	15
HDA ASSEMBLY	70-22937-01	2	1
HDA/CARRIER ASSEMBLY	70-22951-01	1	1
HDA/CARRIER ASSEMBLY	70-22951-01	2	N/A
HDA/Filter/Cover Assembly	70-24424-01	8	1
HEAD DISK ASSEMBLY	70-22937-01	8	N/A
Label, "Contamination Seal"	36-27581-03	2	Not Shown
Label, "ESD Graphic"	36-26583-01	7	6
Label, "ESD Graphic"	36-26583-01	2	15
Label, "Part Number Rev ECO"	90-09255-05	3	Not Shown
Label, "Part Number Rev Mfg. ECO"	90-09255-05	5	Not Shown
Label, "Product RA90 Made in Germany"	36-30022-02	1	Not Shown
Label, "Product RA90 Made in USA"	36-30022-01	1	Not Shown
Label, "Warning ESD"	36-24513-01	4	Not Shown
Latch Assembly, HDA Carrier	70-25689-01	3	3
MODULE, ELECTRONIC CONTROL	70-22942-01	7	N/A
MODULE, ELECTRONIC CONTROL (ECM)	70-22942-01	1	3
Module, I/O R/W	54-17771-01	7	3
Module, Motor Noise Filter	54-18644-01	8	19
Module, Preamp Control (PCM)	54-17758-01	2	13
Module, Servo	54-17769-01	7	2
Mount, Shock	12-29582-01	2	9
Nut, Kep No. 10-32 x 1/4	90-08185-00	7	5
Nut, Kep No. 6-32 x 1/4	90-08185-00	5	3
Pad, Bumper	12-27957-03	8	17
Pad, Snubber w/Adhesive	12-27957-02	5	5
Pad, Snubber w/Adhesive	12-27957-01	5	11
Pad, Snubber w/Adhesive	12-27957-04	3	11
PANEL ASSEMBLY, REAR	70-22941-01	5	1
PANEL ASSEMBLY, REAR (NEW)	70-22941-01	6	N/A
Panel, Operator Control w/Components	30-24453-01	1	5
Pin, Connector Bracket	74-31368-01	6	11
Pin, Guide (HDA) Connector	74-36854-01	3	6
Plate Assembly, Divider	70-24434-01	5	2
Plate, Rear Interface	74-31924-01	6	1
Power Supply, 5.1V 9.7A Switching (H7142)	30-23506-01	1	6
RA90 DISK DRIVE ASSEMBLY	70-23899-01	1	N/A
Receptacle, Clip-On	90-10434-01	6	14
Receptacle, Spring	90-08197-02	6	8
Retainer, Chassis	74-32804-01	5	12
Retainer, Thermoplastic Push-On	90-10681-01	4	12
Retractor/Solenoid Assembly	70-23897-01	8	11

# RA90 DISK DRIVE ASSEMBLY SORTED BY DEC PART DESCRIPTION

DESCRIPTION	DEC PART NO.	FIG. NO.	ITEM
Ring, External Retainer	90-10318-00	4	5
Ring, External Retaining	90-09273-00	2	12
Ring, External Retaining	90-10171-01	6	5
Ring, External Retaining	90-09273-01	6	20
Ring, Retaining	90-09273-00	3	7
Rivet, Repetition Taper	90-00053-50	6	9
Rivet, Repetition Taper Dome .094 Dia	90-00053-15	4	13
Screw, 82 Degrees Flat Hd No. 8-32 x 5/8	90-06040-02	2	8
Screw, 82 Degrees Flat Hd No. 10-32 x 1/2	90-06073-02	8	15
Screw, Gasket Plug No. 10-32	90-10664-01	8	18
Screw, Machine Pan Hd No. 6-32 x 3/8	12-22662-02	8	12
Screw, Machine Phl Pan Hd No. 6-32 x 5/8	90-06025-01	8	23
Screw, Phl Pan Hd No. 4-40 x 1-1/4	90-06018-01	8	6
Screw, Phl Pan Hd No. 6-32 x 1/2	90-10089-03	4	7
Screw, Phl Pan Hd No. 6-32 x 5/16	90-06021-01	2	11
Screw, Phl Pan Hd No. 6-32 x 5/16	90-09800-02	3	10
Screw, Phl Pan Hd No. 6-32 x 7/16	90-09800-13	3	5
Screw, Sems Pan Torx No. 4-40 x 3/4	90-00049-61	6	6
Screw, Sems Pan Torx No. 4-40 x 7/16	90-00049-63	6	12
Screw, Sems Phl Pan Hd No. 6-32 x 1/4	90-10174-00	6	16
Screw, Sems Phl Pan Hd No. 6-32 x 25/64	90-10532-01	2	14
Screw, Sems Phl Pan Hd No. 6-32 x 3/4	90-00049-57	7	4
Screw, Sems Phl Truss Hd No. 10-32 x 3/8	90-00049-18	5	13
Screw, Sems Phl Truss Hd No. 6-32 x 7/8	90-00049-15	2	10
Screw, Soc Hd Cap No. 4-40 x 1/4	90-06009-08	9	4
Screw, Soc Hd Cap No. 4-40 x 3/16	90-00042-09	9	5
Screw, Socket Cap Hd No. 6-32 x 3/8	90-08045-08	2	6
Screw, Socket Cap Hd No. 8-32 x 21/64	90-06337-08	8	10
Screw, Socket Cap Hex Hd No. 10-32 x 5/16	90-08330-08	5	10
Screw, Socket Cap Hex Hd No. 8-32 x 25/64	90-06337-08	5	7
Sheet, Barrier/Laminate	99-08190-01	1	Not Shown
Shield, Ground Brush	74-32552-01	9	3
Sleeve, Flanged 0.130 I.D.	74-37253-01	3	13
Sleeve, HDA Carrier	74-36469-01	3	2
Spacer	90-07615-00	8	22
Spindle, Brake	12-25348-01	9	1
Spring, Compression	12-27444-05	6	19
Spring, Compression	12-28772-01	8	5
Spring, Compression	12-13656-08	3	8
Tape, 100 MPH Duct	99-08258-01	1	Not Shown
Terminal, 3 Socket Housing Mate-N-Lok	12-12167-15	8	20
Tie, Ribbed Mount Cable	90-10605-02	8	13
Tool, AMP Insert/Extract	29-26655-00	1	Not Shown

# RA90 DISK DRIVE ASSEMBLY SORTED BY DEC PART DESCRIPTION

DESCRIPTION	DEC PART NO.	FIG. NO.	ITEM
Washer, Curved Spring	90-10687-01	6	10
Washer, Flat	90-10898-01	3	12
Washer, Flat	90-06659-00	4	8
Washer, Flat	90-10509-01	5	8
Washer, Flat #6	90-06659-00	3	9
Washer, Flat #8	90-06661-00	2	4
Washer, Flat Mylar	90-10241-04	8	14
Washer, Flat Mylar	90-10241-06	4	10
Washer, Flat Mylar	90-10241-06	6	3
Washer, Flat Nylon	90-00003-09	4	9
Washer, Flat Nylon	90-00003-16	6	17
Washer, Flat Nylon	90-00003-11	6	4
Washer, Flat SST	90-08172-00	8	4
Washer, Helical Split	90-10377-01	5	9
Washer, Helical Split #6	90-07801-00	2	5
Washer, Helical Split No. 8	90-06690-00	5	6
Washer, Lock	90-07649-00	3	4
Weldment, Chassis	70-21586-01	5	15